

# Proposed Amendment

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Applicant	Iwao Fujisaki
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Commissioner for Patents  
P.O. Box 1450  
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U.S.A.

## Amendment D

Sir/Madam:

In response to the Office Action of 2006/10/06, please amend the above-identified application as follows:

- **Amendments to the Specification** begin on page 2 of this paper.
- **Amendments to the Claims** begin on page XX of this paper.
- **Remarks/Arguments** begin on page XX of this paper.

Best Regards,

Iwao Fujisaki

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### Amendments to the Specification

Please replace paragraph [0002] with the following amended paragraph:

**[0002]** Lately simulation software is being used in video games, military training devices, and other types of devices which implement virtual reality.

These devices are designed to display various types of objects which exist in the real world, however, the movement of a human being displayed thereon gives a sense of awkwardness to the users thereof since these devices do ~~not reflect~~ not reflect the movement of a human being in the real world in a precise manner.

One reason which gives such sense of awkwardness is that the clothe worn by a human being~~does~~ being does not wrinkle at all when he/she ~~bend~~ sh**is** bends his/her limbs. Fig. 1a and Fig. 1b illustrate the method of displaying an arm of a human being by utilizing the prior art. As described in Fig. 1a, arm AR of a human being is composed of hand HD, lower arm LA, joint JT, and upper arm UA. Assuming that arm UA is covered by fabric FB, i.e., the human being is wearing a clothe which covers his/her arms. When arm AR is stretched as described in Fig. 1a and joint JT is not bent, wrinkle does not occur on or near joint JT. When arm AR is bent as described in Fig. 1b, however, due to the nature of fabric FB one or more of wrinkles occur on or near joint JT in the real world. Prior art has not yet described the movement of limbs in such a way thereby gives a sense of awkwardness to the users since no wrinkles are shown. Another reason which gives a sense of awkwardness to the users is that the prior art has ignored to display the muscle movement of the limbs of the human beings. When arm AR is bent as described in Fig. 1b, the muscles of upper arm

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UA bulge in the real world, however, the prior art has not yet described the muscle movement in such a way.

**Please replace paragraph [0003] with the following amended paragraph:**

**[0003]** U.S. Pat. No. 6,317,125 introduces 6,317,125 introduces a video object generation method (100) for converting a model (102) such that a tessellation operation (164) can create a realistic character in real time during game play. According to this prior art, a shelling and slicing operation (106) produces data strings (140) describing a plurality of slices (110) of the model (102). An assign body parts and edit strings operation (130) places cuts (134) on the model (102) and an apply influences operation (144) establishes the influence on each of a plurality of points (142) from a plurality of bones (148) of a skeleton (146). In real time operations (162) a tessellation operation (164) creates a triangle mesh (165) appropriate to the position and importance of the character in game space, and a properly bent character is displayed in a display operation (168). This prior art introduces the concept of producing realistic images, however, does not explain nor imply the present invention, i.e., the method of producing and displaying wrinkles on limbs of a human being.

**Please replace paragraph [0004] with the following amended paragraph:**

**[0004]** U.S. Pat. No. 6,317,130 introduces 6,317,130 introduces apparatus and method to enable an animation character object, which is pictorially deformed by computer graphics techniques to visually represent human body or animal or the like in the form of a caricature or model, to offer

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precise and more natural motions at its selected constituent portions that have inherently no joints and no bones by giving thereto joints and skeletons.

According to this prior art, apparatus and method for generating skeleton-based animation images in accordance with the principles of the invention include solving means as follows. A face section of a cubic character object is provided with auxiliary skeletons as vertically coupled together. Skeletons are provided which extend from respective endpoints of such auxiliary skeletons and are coupled defining an umbrella shape as a whole. These skeletons are associated with models each consisting of an ensemble of polygons for rendering the character deformable by changing rotation amount of each skeleton. This prior art introduces the concept of producing realistic images, however, does not explain nor imply the present invention, i.e., the method of producing and displaying wrinkles on limbs of a human being.

**Please replace paragraph [0005] with the following amended paragraph:**

**[0005]** U.S. Pat. No. 6,310,619 ~~introduces~~ introduces a three-dimensional, virtual reality, tissue specific model of a human or animal body which provides a high level of user-interactivity. According to this prior art, the model functions can be analyzed and user-modified on a tissue-by-tissue basis, thereby allowing modeling of a wide variety of normal and abnormal tissue attributes and corresponding study thereof. The model can be user-modified through a keyboard, or other VR tools such as a haptic interface. The haptic interface can modify the model to correspond to the tissue attributes of a user, and can provide sensory output corresponding to the interaction of the model to

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a prescribed scene. A three-dimensional, virtual reality, tissue specific model of a human or animal body which provides a high level of user-interactivity. The model functions can be analyzed and user-modified on a tissue-by-tissue basis, thereby allowing modeling of a wide variety of normal and abnormal tissue attributes and corresponding study thereof. The model can be user-modified through a keyboard, or other VR tools such as a haptic interface. The haptic interface can modify the model to correspond to the tissue attributes of a user, and can provide sensory output corresponding to the interaction of the model to a prescribed scene. This prior art introduces the concept of producing realistic images, however, does not explain nor imply the present invention, i.e., the method of producing and displaying wrinkles on limbs of a human being.

**Please replace paragraph [0006] with the following amended paragraph:**

**[0006]** U.S. Pat. No. 5,625,577 ~~introduces~~ 5,625,577 introduces a motion analyzing method which analyzes and displays motions of a human being or an animal using a computer in an interactive manner without requiring trial and error or without depending on intuition of an analyst. According to this prior art, a human body or an animal body is divided into a plurality of segments connected by joints, each of the segments acting as a minimal unit of motion. Data for modeling the human or animal body on the basis of physical constraints and the inherent nature of each of the segments is maintained in a database. Motions are input to be analyzed and the input motions are analyzed using inverse dynamics. The resultant movements and the center of gravity of each of the segments, the force and torque exerted on each of the joints, the movement

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and the center of gravity of the whole body, and the forces and torques exerted on the centers of gravity are superimposed on the human or animal body model of the database and are displayed on a screen. The new motions thus displayed can be used for the teaching of new skills in the industrial or performing arts, in sports, or in animal training. This prior art introduces the concept of producing realistic images, however, does not explain nor imply the present invention, i.e., the method of producing and displaying wrinkles on limbs of a human being.

**Please replace paragraph [0007] with the following amended paragraph:**

**[0007]** U.S. Pat. No. 6,215,500 introduces 6,215,500 introduces methods and systems for compressing and decompressing 3-D geometry data which includes regularly tiled surface portions. According to this prior art, one compression method includes representing a surface portion as a "vertex raster", which comprises specifying an extent value and encoding the vertex parameter values of vertices within the surface portion. The extent of the surface portion specifies the arrangement of vertices within the surface portion, and allows the vertices to be properly assembled into drawing primitives during decompression. The encoded vertex parameter values may be encoded globally (by setting initial values and corresponding delta values), locally (on a per-vertex basis), or using a combination of these techniques. Absolute, delta encoding, or delta-delta encoding may be utilized for these parameter values. Vertex parameters which may be encoded in this manner include position, color, normals, z-displacement values, texture map coordinates, and surface material properties. Additionally, connectivity information may also be encoded using this compression method by

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specifying quad split bits and half-resolution edges. Quad split bits are used to tessellate a quadrilateral formed by neighboring vertices of a surface portion according to the direction of the strongest color change. Half-resolution edges are utilized to gradually shift from an area of high resolution to an adjacent surface portion represented in lower resolution. For graphical objects which include a plurality of adjacent surface portions, a step command is disclosed which allows data from one surface portion to be advantageously reused. Decompression of a vertex raster representation may comprise decoding the extent value, global parameter values, and a per-vertex stream of local parameter values. This prior art introduces the concept of producing realistic images, however, does not explain nor imply the present invention, i.e., the method of producing and displaying wrinkles on limbs of a human being.

**Please replace paragraph [0008] with the following amended paragraph:**

**[0008]** U.S. Pat. No. 6,204,860 introduces ~~6,204,860~~ introduces a system that defines a wire curve deformation primitive with a free-form parametric curve associated with the closest points to the curve on a surface of a model. According to this prior art, the wire curve includes a radius influence defining the points on the object which will be deformed. A scale factor determines the amplitude of the scaling or point movement that is caused by the wire curve. A blending function of the wire curve defines the transition form deformed regions of the object to undeformed regions of the object. The wire curve can have associated with it holder curves defining the domain of deformation about an object caused by one or more wires. A holder curve holds

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the points of the object in place. Locators are used to define different parameters values along the wire curve. Changes in parameter values around the locators are accomplished by interpolation. Deforming includes preprocessing steps as well as deformation stage operations. This prior art introduces the concept of producing realistic images, however, does not explain nor imply the present invention, i.e., the method of producing and displaying wrinkles on limbs of a human being.

**Please replace paragraph [0009] with the following amended paragraph:**

**[0009]** U.S. Pat. No. 6,144,385 introduces 6,144,385 introduces a character animation system executing on a computer. According to this prior art, the system provides a simple, efficient and powerful user interface that allows the user to specify complex animations of multi-legged characters by placing footprints on a surface. A compiler automatically generates a natural looking animation based on the footprints. Motions such as walking, running, jumping, etc. are easily animated depending on the way footprints are placed. The user is able to create new footprint patterns and modify existing patterns. Footprint blocks on a timeline are used to specify the time duration that each foot is in contact with a footprint. The user may specify keyframes in the animation sequence that allow more complicated body movements to be incorporated with the footprint based animation. This prior art introduces the concept of producing realistic images, however, does not explain nor imply the present invention, i.e., the method of producing and displaying wrinkles on limbs of a human being.

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**Please replace paragraph [0010] with the following amended paragraph:**

**[0010]** U.S. Pat. No. 6,088,034 introduces 6,088,034 introduces a method and apparatus wherein three-dimensional compressed geometry is decompressed with a unit having an input FIFO receiving compressed data bits and outputting to an input block state machine and an input block, whose outputs are coupled to a barrel shifter unit. According to this prior art, input block output also is input to Huffman tables that output to the state machine. The state machine output also is coupled to a data path controller whose output is coupled to a tag decoder, and to a normal processor receiving output from the barrel shifter unit. The decompressor unit also includes a position/color processor that receives output from the barrel shifter unit. Outputs from the normal processor and position/color processor are multiplexed to a format converter. For instructions in the data stream that generate output to the format converter, the decompression unit generates a tag sent to the tag decoder in parallel with bits for normals that are sent to the format converter. The decompressed stream of triangle data may then be passed to a traditional rendering pipeline, where it can be processed in full floating point accuracy, and thereafter displayed or otherwise used. This prior art introduces the concept of producing realistic images, however, does not explain nor imply the present invention, i.e., the method of producing and displaying wrinkles on limbs of a human being.

**Please replace paragraph [0011] with the following amended paragraph:**

**[0011]** U.S. Pat. No. 6,064,390 introduces 6,064,390 introduces an apparatus and method for representing expression in a tissue-like system that

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may include a human face, where the system is particularized to a specified individual. According to this prior art, a graphical representation generator implemented in a computer determines a representation, in terms of a finite-element model, of the surface of the tissue of the system, providing a graphic output defining the surface in world coordinates. An expressive detail generator, including a wrinkle generator, modifies the surface determined by the graphical representation generator before the surface has been mapped into world coordinates in accordance with three-dimensional features of the tissue-like system of a particular subject. This prior art introduces the concept of producing realistic images, however, does not explain nor imply the present invention, i.e., the method of producing and displaying wrinkles on limbs of a human being.

**Please replace paragraph [0012] with the following amended paragraph:**

**[0012]** U.S. Pat. No. 6,850,222 introduces a computer system for displaying clothing on a rendered image of a human body referred to as a virtual dressing room system ("VDRS"). According to this prior art, the VDRS receives a series of contour lines defining the three-dimensional shape of the human body. A contour line is a series of points that defines the perimeter of the body in a horizontal plane. The VDRS also receives a sequence of points defining the two-dimensional shape of the clothing. The VDRS also scales the sequence of points defining the two-dimensional shape of the clothing to the approximate width of a portion of the human body over which the clothing is worn. For each point of the two-dimensional shape, the VDRS identifies a

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corresponding point on a contour line, and adjusts the point of the two-dimensional shape of the clothing to correspond to the identified point. The VDRS renders the shape of the human body on a display device, and lenders the scaled and adjusted two-dimensional shape of the clothing on the display device to effect the display of the human body wearing the clothing. This prior art introduces the concept of producing realistic images, however, does not explain nor imply the present invention, i.e., the method of producing and displaying wrinkles on limbs of a human being.

**Please replace paragraph [0013] with the following amended paragraph:**

**[0013]** U.S. Pat. No. 5,802,220 introduces 5,802,220 introduces a system which tracks human head and facial features over time by analyzing a sequence of images. According to this prior art, the system provides descriptions of motion of both head and facial features between two image frames. These descriptions of motion are further analyzed by the system to recognize facial movement and expression. The system analyzes motion between two images using parameterized models of image motion. Initially, a first image in a sequence of images is segmented into a face region and a plurality of facial feature regions. A planar model is used to recover motion parameters that estimate motion between the segmented face region in the first image and a second image in the sequence of images. The second image is warped or shifted back towards the first image using the estimated motion parameters of the planar model, in order to model the facial features relative to the first image. An affine model and an affine model with curvature are used to recover motion

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parameters that estimate the image motion between the segmented facial feature regions and the warped second image. The recovered motion parameters of the facial feature regions represent the relative motions of the facial features between the first image and the warped image. The face region in the second image is tracked using the recovered motion parameters of the face region. The facial feature regions in the second image are tracked using both the recovered motion parameters for the face region and the motion parameters for the facial feature regions. The parameters describing the motion of the face and facial features are filtered to derive mid-level predicates that define facial gestures occurring between the two images. These mid-level predicates are evaluated over time to determine facial expression and gestures occurring in the image sequence. This prior art introduces the concept of producing realistic images, however, does not explain nor imply the present invention, i.e., the method of producing and displaying wrinkles on limbs of a human being.

**Please replace paragraph [0014] with the following amended paragraph:**

**[0014]** U.S. Pat. No. 5,687,737 ~~introduces~~ 5,687,737 introduces an optimal electrophysiologic mapping system for map-directed arrhythmia surgery and cardiac research allows rapid and accurate interpretation of cardiac activation sequences. According to this prior art, the system can display activation or potential distribution data on an anatomically accurate 3-D model of the heart and allows fast, interactive control of viewing characteristics, including control of which cardiac surfaces are displayed, control of virtual lighting, rotational control of the displayed image, etc. The system employs two computer

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programs, GETPIC3 and MAP3, and runs on a Silicon Graphics workstation capable of rapid graphics calculations and displays. The system utilizes 3-D models of epicardial and endocardial surfaces created with the GETPIC3 program from a sequence of 2-D images of a heart. The individual surfaces are triangulated and may be smoothed using a spline function. The MAP3 program displays activation times either as static isochronous maps or as dynamic time-since-last-activation maps. In the latter case, surface color denotes the time elapsed since a particular area activated. Potential distribution data may also be displayed dynamically. A mouse allows the system operator to control real-time rotation of the model in three dimensions, and any surface can be hidden interactively for better viewing of the data. Control is also provided over the starting, stopping, reversing, and repeating of data, as well as over the frame rate for dynamic displays. This prior art introduces the concept of producing realistic images, however, does not explain nor imply the present invention, i.e., the method of producing and displaying wrinkles on limbs of a human being.

**Please replace paragraph [0015] with the following amended paragraph:**

**[0015]** U.S. Pat. No. 5,504,845 introduces No. 5,504,845 introduces a three dimensional image of a solid form which is presented to an operator by means of a stereoscopic display. According to this prior art, the operator defines a panel on the surface of the form with a set of bounding seam lines. A polygonal mesh is generated between the seam lines and is manipulated in three dimensions by the operator to achieve a desired surface appearance, including wrinkles, folds, pleats and other details. Manipulation of the mesh is constrained

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by the mechanical properties of the surface material or fabric being modelled. Surface texture and shading are then mapped onto the mesh to fully render the surface appearance in three dimensions. This prior art introduces the concept of producing realistic images, however, does not explain nor imply the present invention, i.e., the method of producing and displaying wrinkles on limbs of a human being.

**Please replace paragraph [0016] with the following amended paragraph:**

**[0016]** U.S. Pat. No. 5,267,154 introduces 5,267,154 introduces a biological image formation aiding system and a biological image forming method which are provided in which three-dimensional data corresponding to a standard shape of a biological article, standard motion thereof, and a standard material feeling of an outer surface of the biological article are prepared, and a realistic three-dimensional synthesized image of an entire biological article with individuality can be formed simply. According to this prior art, the system includes a shape data storage for storing data corresponding to a three-dimensional shape of a biological image; a motion data storage for storing data corresponding to three-dimensional motion of the biological image, a material feeling data storage for storing data corresponding to a three-dimensional material feeling of an outer surface of the biological image; editing/processing units capable of modifying at least one of the data corresponding to the three-dimensional shape of the biological image, the three-dimensional data corresponding to the motion of the biological image, and the data corresponding to the three-dimensional material feeling of the outer

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surface of the biological image in accordance with a producer's intent; and an output unit responsive to the outputs of the editing/processing unit for synthesizing the data corresponding to the three-dimensional biological image, the data corresponding to the three-dimensional motion of the biological image, and the data corresponding to the three-dimensional material feeling of the outer surface of the biological image after modification with each other to provide synthesized three-dimensional data for a biological image to be produced. This prior art introduces the concept of producing realistic images, however, does not explain nor imply the present invention, i.e., the method of producing and displaying wrinkles on limbs of a human being.

**Please replace paragraph [0017] with the following amended paragraph:**

[0017] U.S. Pat. No. 6,326,967 introduces an image creating apparatus which displays a plurality of identical game-element images in predetermined colors on an image display unit by pasting textures on polygons provided in a virtual three-dimensional space. According to this prior art, the image creating apparatus includes a polygon-data storage unit for storing the coordinates of N (integer not less than 2) sets of polygons constituting the element images so that N game elements are arranged and displayed on the display unit; a texture-selection-data storage unit for selecting one set of the textures which corresponds to one of the characters; a color-data storage unit for storing, as a basic color, a first color determined for the one set of the textures; a color-data setting unit for setting a second color; and a composite-color setting unit for setting composite colors for the textures to be pasted on N sets of

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polygons, the composite colors being obtained by mixing the first color and the second color at different ratios. This prior art introduces the concept of producing realistic images, however, does not explain nor imply the present invention, i.e., the method of producing and displaying wrinkles on limbs of a human being.

**Please replace paragraph [0018] with the following amended paragraph:**

**[0018]** U.S. Pat. No. 6,322,448 ~~introduces~~ introduces a image processing device for games which is a device whereby a prescribed number of models (characters) are set up in virtual space, these models are controlled such that they move in prescribed directions in the virtual space, and images of this virtual space from a virtual viewpoint are displayed on means for display. According to this prior art, in order to display the movement of the models that are arranged in virtual space more realistically, in one construction thereof, this device is provided with means for image processing that apply virtual centripetal force to the models. Furthermore, in order to display the movement of the models more realistically and to heighten the dramatic effect, in one construction thereof, this device is equipped with means for processing residual image presentation in order to represent the track of movement of a model as residual images. This means for processing is equipped with means for storage that store without modification motion data of the model prior to the current motion and with means for display control that display this stored data together with the current motion data. This prior art introduces the concept of producing realistic images, however, does not explain nor imply the present invention, i.e., the method of producing and displaying wrinkles on limbs of a human being.

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**Please replace paragraph [0019] with the following amended paragraph:**

[0019] U.S. Pat. No. 6,320,988 introduces a method of transforming the shape of a skeleton model, wherein this method can easily handle a skeleton model of a multiple-branching structure and enables the easy setting of complicated restrictive conditions. According to this prior art, node coordinates and arc-normal vectors are used as basic variables. Basic equations, which comprise an equation defining the length of an arc and which use basic variables as unknowns, and an evaluation expression for uniquely specifying a solution that satisfies these basic equations are modified, based on data such as mouse input. A solution for the basic variables that satisfies the basic equations and minimizes the value of the evaluation expression is obtained, and the shape of the skeleton model is transformed accordingly. The evaluation expression is used to set minimization of the sum-of-squares of arc-to-arc angles, rubber-banding, dampers, and inertia. The basic equations and the evaluation expression are updated in synchronization with the end of a loop. A spring restriction can be set, and the use of a restrictive condition in the next loop of the calculations can be determined from whether or not the restrictive condition was used in the previous loop, and whether or not an object has passed a boundary. This prior art introduces the concept of producing realistic images, however, does not explain nor imply the present invention, i.e., the method of producing and displaying wrinkles on limbs of a human being.

**Please replace paragraph [0026] with the following amended paragraph:**

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**[0026]** Fig. 1a is a simplified illustration of an exemplary embodiment of the present invention illustrating the method to display the arm of a human being by utilizing the prior art.

**Please replace paragraph [0027] with the following amended paragraph:**

**[0027]** Fig. 1b is a simplified illustration of an exemplary embodiment of the present invention illustrating the method to display the arm of a human being by utilizing the prior art.

**Please replace paragraph [0028] with the following amended paragraph:**

**[0028]** Fig. 2 is a block diagram illustration of the computer which performs the present invention an exemplary embodiment of the present invention.

**Please replace paragraph [0029] with the following amended paragraph:**

**[0029]** Fig. 3 is a block-diagram illustration of an exemplary embodiment of the present invention simplified illustration of the area included in the RAM.

**Please replace paragraph [0030] with the following amended paragraph:**

**[0030]** Fig. 4 is a simplified illustration of an exemplary embodiment illustrating the concept of the present invention.

**Please replace paragraph [0031] with the following amended paragraph:**

**[0031]** Fig. 5 is a simplified illustration of an exemplary embodiment of

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illustrating one method of generating wrinklesthe present invention.

**Please replace paragraph [0032] with the following amended paragraph:**

**[0032]** Fig. 6 is a simplified illustration of an exemplary embodiment of illustrating another method of generating wrinklesthe present invention.

**Please replace paragraph [0033] with the following amended paragraph:**

**[0033]** Fig. 7 is a block-diagram illustration of an exemplary embodiment of the present inventionsimplified illustration of the area included in the RAM.

**Please replace paragraph [0034] with the following amended paragraph:**

**[0034]** Fig. 8 is a simplified illustration of an exemplary embodiment of the present inventionthe content included in the RAM illustrated in Fig. 7.

**Please replace paragraph [0035] with the following amended paragraph:**

**[0035]** Fig. 9a is a simplified illustration of an exemplary embodiment of the present inventionthe method to display the arm on the monitor.

**Please replace paragraph [0036] with the following amended paragraph:**

**[0036]** Fig. 9b is a simplified illustration of an exemplary embodiment of the present inventionthe method to display the arm on the monitor.

**Please replace paragraph [0037] with the following amended paragraph:**

**[0037]** Fig. 9c is a simplified illustration of an exemplary embodiment of

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~~the present invention~~~~the method to display the arm on the monitor.~~

**Please replace paragraph [0038] with the following amended paragraph:**

**[0038]** Fig. 9e is a simplified illustration of an exemplary embodiment of  
~~the present invention~~~~the method to display the arm on the monitor.~~

**Please replace paragraph [0039] with the following amended paragraph:**

**[0039]** Fig. 10 is a block-diagram illustration of an exemplary embodiment of the present invention~~simplified illustration of the area included in the RAM.~~

**Please replace paragraph [0040] with the following amended paragraph:**

**[0040]** Fig. 11 is a flowchart illustration of an exemplary embodiment of the present invention~~illustrating the operation of the wrinkle generating software.~~

**Please replace paragraph [0041] with the following amended paragraph:**

**[0041]** Fig. 12a is a simplified illustration of an exemplary embodiment of the present invention~~to produce wrinkles.~~

**Please replace paragraph [0042] with the following amended paragraph:**

**[0042]** Fig. 12b is a simplified illustration of an exemplary embodiment of the present invention~~to produce wrinkles.~~

**Please replace paragraph [0043] with the following amended paragraph:**

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**[0043]** Fig. 12c is a simplified illustration of an exemplary embodiment of the present inventionto produce wrinkles.

**Please replace paragraph [0044] with the following amended paragraph:**

**[0044]** Fig. 12d is a simplified illustration of an exemplary embodiment of the present inventionto produce wrinkles.

**Please replace paragraph [0045] with the following amended paragraph:**

**[0045]** Fig. 13 is a block-diagram illustration of an exemplary embodiment of the present inventionsimplified illustration of the area included in the RAM.

**Please replace paragraph [0046] with the following amended paragraph:**

**[0046]** Fig. 14 is a simplified illustration of an exemplary embodiment of the present inventionthe content included in the RAM illustrated in Fig. 13.

**Please replace paragraph [0047] with the following amended paragraph:**

**[0047]** Fig. 15a is a simplified illustration of an exemplary embodiment of the present inventionthe method to display a wrinkle on the monitor.

**Please replace paragraph [0048] with the following amended paragraph:**

**[0048]** Fig. 15b is a simplified illustration of an exemplary embodiment of the present inventionthe method to display a wrinkle on the monitor.

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**Please replace paragraph [0049] with the following amended paragraph:**

**[0049]** Fig. 15c is a simplified illustration of ~~an exemplary embodiment~~ of the present invention ~~the method to display a wrinkle on the monitor.~~

**Please replace paragraph [0050] with the following amended paragraph:**

**[0050]** Fig. 15d is a simplified illustration of ~~an exemplary embodiment~~ of the present invention ~~the method to display a wrinkle on the monitor.~~

**Please replace paragraph [0051] with the following amended paragraph:**

**[0051]** Fig. 15e is a simplified illustration of ~~an exemplary embodiment~~ of the present invention ~~the method to display a wrinkle on the monitor.~~

**Please replace paragraph [0052] with the following amended paragraph:**

**[0052]** Fig. 16 is a block-diagram-illustration of ~~an exemplary embodiment of the present invention~~ ~~simplified illustration of the area included in the RAM.~~

**Please replace paragraph [0053] with the following amended paragraph:**

**[0053]** Fig. 17 is a flowchart-illustration of ~~an exemplary embodiment of the present invention~~ ~~illustrating the operation of the wrinkle generating software.~~

**Please replace paragraph [0054] with the following amended paragraph:**

**[0054]** Fig. 18a is a simplified illustration of ~~an exemplary embodiment~~ of the present invention ~~the method to display the arm on the monitor.~~

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**Please replace paragraph [0055] with the following amended paragraph:**

[0055] Fig. 18b is a simplified illustration of an exemplary embodiment of the present inventionthe method to display the arm on the monitor.

**Please replace paragraph [0056] with the following amended paragraph:**

[0056] Fig. 18c is a simplified illustration of an exemplary embodiment of the present inventionthe method to display the arm on the monitor.

**Please replace paragraph [0057] with the following amended paragraph:**

[0057] Fig. 18d is a simplified illustration of an exemplary embodiment of the present inventionthe method to display the arm on the monitor.

**Please replace paragraph [0058] with the following amended paragraph:**

[0058] Fig. 18e is a simplified illustration of an exemplary embodiment of the present inventionthe method to display the arm on the monitor.

**Please replace paragraph [0059] with the following amended paragraph:**

[0059] Fig. 19 is a block diagram illustration of an exemplary embodiment of the present inventionsimplified illustration of the area included in the RAM.

**Please replace paragraph [0060] with the following amended paragraph:**

[0060] Fig. 20 is a simplified illustration of an exemplary embodiment of

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~~the present invention~~ the content included in the RAM illustrated in Fig. 20.

**Please replace paragraph [0061] with the following amended paragraph:**

**[0061]** Fig. 21a is a simplified illustration of ~~an exemplary embodiment~~ of the present invention~~the method to display the arm on the monitor~~.

**Please replace paragraph [0062] with the following amended paragraph:**

**[0062]** Fig. 21b is a simplified illustration of ~~an exemplary embodiment~~ of the present invention~~the method to display wrinkles on the monitor~~.

**Please replace paragraph [0063] with the following amended paragraph:**

**[0063]** Fig. 21c is a simplified illustration of ~~an exemplary embodiment~~ of the present invention~~the method to display wrinkles on the monitor~~.

**Please replace paragraph [0064] with the following amended paragraph:**

**[0064]** Fig. 21d is a simplified illustration of ~~an exemplary embodiment~~ of the present invention~~the method to display wrinkles on the monitor~~.

**Please replace paragraph [0065] with the following amended paragraph:**

**[0065]** Fig. 21e is a simplified illustration of ~~an exemplary embodiment~~ of the present invention~~the method to display wrinkles on the monitor~~.

**Please replace paragraph [0066] with the following amended paragraph:**

**[0066]** Fig. 22 is a block-diagram illustration of ~~an exemplary~~

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~~embodiment of the present invention simplified illustration of the area included in the RAM.~~

**Please replace paragraph [0067] with the following amended paragraph:**

**[0067]** Fig. 23 is a flowchart ~~illustration of an exemplary embodiment of the present invention illustrating the operation of the wrinkle generating software.~~

**Please replace paragraph [0068] with the following amended paragraph:**

**[0068]** Fig. 24a is a simplified illustration ~~of an exemplary embodiment of the present invention the method to display the arm on the monitor.~~

**Please replace paragraph [0069] with the following amended paragraph:**

**[0069]** Fig. 24b is a simplified illustration ~~of an exemplary embodiment of the present invention the method to display wrinkles on the monitor.~~

**Please replace paragraph [0070] with the following amended paragraph:**

**[0070]** Fig. 24c is a simplified illustration ~~of an exemplary embodiment of the present invention the method to display wrinkles on the monitor.~~

**Please replace paragraph [0071] with the following amended paragraph:**

**[0071]** Fig. 24d is a simplified illustration ~~of an exemplary embodiment of the present invention the method to display wrinkles on the monitor.~~

**Please replace paragraph [0072] with the following amended paragraph:**

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**[0072]** Fig. 24e is a simplified illustration of an exemplary embodiment of the present inventionthe method to display wrinkles on the monitor.

**Please replace paragraph [0073] with the following amended paragraph:**

**[0073]** Fig. 25 is a block-diagram illustration of an exemplary embodiment of the present inventionsimplified illustration of the area included in the RAM.

**Please replace paragraph [0074] with the following amended paragraph:**

**[0074]** Fig. 26 is a simplified illustration of an exemplary embodiment of the present inventionthe method to display the arm on the monitor.

**Please replace paragraph [0075] with the following amended paragraph:**

**[0075]** Fig. 27 is a simplified illustration of an exemplary embodiment of the present inventionthe method to display muscle movement.

**Please replace paragraph [0076] with the following amended paragraph:**

**[0076]** Fig. 28 is a block-diagram illustration of an exemplary embodiment of the present inventionsimplified illustration of the area included in the RAM.

**Please replace paragraph [0077] with the following amended paragraph:**

**[0077]** Fig. 29 is a simplified illustration of an exemplary embodiment of the present inventionthe data stored in the RAM.

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**Please replace paragraph [0078] with the following amended paragraph:**

[0078] Fig. 30a is a simplified illustration of ~~an exemplary embodiment~~ of the present invention~~the method to display the arm on the monitor.~~

**Please replace paragraph [0079] with the following amended paragraph:**

[0079] Fig. 30b is a simplified illustration of ~~an exemplary embodiment~~ of the present invention~~the method to display the arm on the monitor.~~

**Please replace paragraph [0080] with the following amended paragraph:**

[0080] Fig. 30c is a simplified illustration of ~~an exemplary embodiment~~ of the present invention~~the method to display the arm on the monitor.~~

**Please replace paragraph [0081] with the following amended paragraph:**

[0081] Fig. 30d is a simplified illustration of ~~an exemplary embodiment~~ of the present invention~~the method to display the arm on the monitor.~~

**Please replace paragraph [0082] with the following amended paragraph:**

[0082] Fig. 30e is a simplified illustration of ~~an exemplary embodiment~~ of the present invention~~the method to display the arm on the monitor.~~

**Please replace paragraph [0083] with the following amended paragraph:**

[0083] Fig. 31 is a flowchart illustration of ~~an exemplary embodiment~~ of the present invention~~illustrating the operation of the muscle movement.~~

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generating software.

**Please replace paragraph [0084] with the following amended paragraph:**

**[0084]** Fig. 32a is a simplified illustration of an exemplary embodiment of the present inventionthe method to display the muscle movement on the monitor.

**Please replace paragraph [0085] with the following amended paragraph:**

**[0085]** Fig. 32b is a simplified illustration of an exemplary embodiment of the present inventionthe method to display the muscle movement on the monitor.

**Please replace paragraph [0086] with the following amended paragraph:**

**[0086]** Fig. 32c is a simplified illustration of an exemplary embodiment of the present inventionthe method to display the muscle movement on the monitor.

**Please replace paragraph [0087] with the following amended paragraph:**

**[0087]** Fig. 32d is a simplified illustration of an exemplary embodiment of the present inventionthe method to display the muscle movement on the monitor.

**Please replace paragraph [0088] with the following amended paragraph:**

**[0088]** Fig. 32e is a simplified illustration of an exemplary embodiment

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of the present invention the method to display the muscle movement on the monitor.

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### **Amendments to the Claims:**

This listing of claims will replace all prior versions, and listings, of claims in the application:

### **Listing of Claims:**

1-28 (Canceled)

29. (Currently Amended) An arm joint wrinkle displaying method which displays object an object with arm joint wrinkle one or more of arm joint wrinkles on display, wherein said method comprising the steps of: retrieving image an image of said object from data storage area a data storage area, and displaying said image of said object on said display, wherein said object comprises arm an arm, said arm comprises upper arm an upper arm, lower arm lower arm, and arm joint an arm joint, said upper arm and said lower arm are connected by said arm joint, arm joint angle value an arm joint angle value which indicates the angle created by said upper arm and said lower arm at said arm joint is variable, and when said arm joint angle value indicates 1st value a 1st value, a 1st length of wrinkle image a wrinkle image of a 1st length which indicates image an image of a wrinkle of a certain length is displayed on or near said arm joint, and when said arm joint angle value indicates 2nd value a 2nd value, a 2nd length of said wrinkle image of a 2nd length which indicates image of wrinkle is shorter than said 1st length of wrinkle image is displayed on or near said arm joint, wherein said 2nd value is value higher larger than said 1st value.

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30. (Currently Amended) An arm joint wrinkle displaying method which displays object an object with arm joint wrinkle one or more of arm joint wrinkles on display a display, wherein said method comprising the steps of: retrieving image an image of said object from data storage area a data storage area, and displaying said image of said object on said display, wherein said object comprises arm an arm, said arm comprises upper arm an upper arm, lower arm lower arm, and arm joint an arm joint, said upper arm and said lower arm are connected by said arm joint, arm joint angle value an arm joint angle value which indicates the angle created by said upper arm and said lower arm at said arm joint is variable, and when said arm joint angle value indicates 1st value a 1st value, a 1st amount of wrinkle image said one or more of arm joint wrinkles is displayed on or near said arm joint, said 1st amount of wrinkle image is an integral-a whole number, and when said arm joint angle value indicates 2nd value a 2nd value, a 2nd amount of wrinkle image said one or more of arm joint wrinkles is displayed on or near said arm joint, said 2nd amount of wrinkle image is an integral-a whole number, wherein said 2nd value is value higher-larger than said 1st value and said 2nd amount of wrinkle image is smaller compared to than said 1st amount of wrinkle image.

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31. (Currently Amended) An arm joint wrinkle displaying method which displays object an object with arm joint wrinkle one or more of arm joint wrinkles on display a display, wherein said method comprising the steps of: retrieving image an image of said object from data storage area a data storage area, and displaying said image of said object on said display, wherein said object

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comprises arm an arm, said arm comprises upper arm an upper arm, lower arm lower arm, and arm joint an arm joint, said upper arm and said lower arm are connected by said arm joint, arm joint angle value an arm joint angle value which indicates the angle created by said upper arm and said lower arm at said arm joint is variable, and when said arm joint angle value indicates 1st value a 1st value, a 1st length of wrinkle image a wrinkle image of a 1st length which indicates image an image of wrinkle a wrinkle of a certain length is displayed on or near said arm joint and a 1st amount of wrinkle image said one or more of arm joint wrinkles is displayed on or near said arm joint, said 1st amount of wrinkle image is an integral a whole number which includes the number of said wrinkle image of said 1st length, and when said arm joint angle value indicates 2nd value a 2nd value, a 2nd length of wrinkle image a said wrinkle image of a 2nd length which indicates image of wrinkle is shorter than said 1st length of wrinkle image is displayed on or near said arm joint and a 2nd amount of wrinkle image said one or more of arm joint wrinkles is displayed on or near said arm joint, said 2nd amount of wrinkle image is an integral a whole number which includes the number of said wrinkle image of said 2nd length, wherein said 2nd value is value higher larger than said 1st value and said 2nd amount of wrinkle image is smaller compared to than said 1st amount of wrinkle image.

32. (New) The arm joint wrinkle displaying method of claim 29, wherein said one or more of arm joint wrinkles is/are produced by utilizing a texture mapping method.

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33. (New) The arm joint wrinkle displaying method of claim 29, wherein said one or more of arm joint wrinkles is/are displayed by utilizing light colors and dark colors.

34. (New) The arm joint wrinkle displaying method of claim 29, wherein said one or more of arm joint wrinkles indicate one or more of wrinkles generated on a fabric.

35. (New) The arm joint wrinkle displaying method of claim 29, wherein said one or more of arm joint wrinkles is/are not displayed when said arm joint angle value indicates a 3rd value.

36. (New) The arm joint wrinkle displaying method of claim 29, wherein the height of said one or more of arm joint wrinkles vary in accordance with said arm joint angle value.

37. (New) The arm joint wrinkle displaying method of claim 30, wherein said one or more of arm joint wrinkles is/are produced by utilizing a texture mapping method.

38. (New) The arm joint wrinkle displaying method of claim 30, wherein said one or more of arm joint wrinkles is/are displayed by utilizing light colors and dark colors.

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39. (New) The arm joint wrinkle displaying method of claim 30, wherein said one or more of arm joint wrinkles indicate one or more of wrinkles generated on a fabric.

40. (New) The arm joint wrinkle displaying method of claim 30, wherein said one or more of arm joint wrinkles is/are not displayed when said arm joint angle value indicates a 3rd value.

41. (New) The arm joint wrinkle displaying method of claim 30, wherein the height of said one or more of arm joint wrinkles vary in accordance with said arm joint angle value.

42. (New) The arm joint wrinkle displaying method of claim 31, wherein said one or more of arm joint wrinkles is/are produced by utilizing a texture mapping method.

43. (New) The arm joint wrinkle displaying method of claim 31, wherein said one or more of arm joint wrinkles is/are displayed by utilizing light colors and dark colors.

44. (New) The arm joint wrinkle displaying method of claim 31, wherein said one or more of arm joint wrinkles indicate one or more of wrinkles generated on a fabric.

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45. (New) The arm joint wrinkle displaying method of claim 31, wherein said one or more of arm joint wrinkles is/are not displayed when said arm joint angle value indicates a 3rd value.

46. (New) The arm joint wrinkle displaying method of claim 31, wherein the height of said one or more of arm joint wrinkles vary in accordance with said arm joint angle value.

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### REMARKS/ARGUMENTS

Claims 1-28 were canceled. Claims 29-31 are pending. New sub-claims 32-46 are added.

### Claims 29-31

Claims 29-31 are rejected under 35 U.S.C 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. In response to the O.A., the claims are amended in the following manner.

- "displays object" is amended to "displays an object";
- "with arm joint wrinkle" is amended to "with one or more of arm joint wrinkles";
- "on display" is amended to "on a display";
- "wherein said method comprising the steps of" is amended to "said method comprises the steps of";
- "retrieving image" is amended to "retrieving an image";
- "from data storage area" is amended to "from a data storage area";
- "comprises arm" is amended to "comprises an arm";
- "comprises upper arm, lower arm, and arm joint" is amended to "comprises an upper arm, a lower arm, and an arm joint";
- "joint, arm joint angle value" is amended to "joint, an arm joint angle value";
- "indicates 1st value" is amended to "indicates a 1st value";

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- "a 1st length of wrinkle image" is amended to "a wrinkle image of a 1st length";
- "indicates image of wrinkle" is amended to "indicates a wrinkle";
- "a 1st amount of wrinkle image is" is amended to "a 1st amount of said one or more of arm joint wrinkles are";
- "said 1st amount of wrinkle image is" is amended to "said 1st amount is";
- "indicates 2nd value" is amended to "indicates a 2nd value";
- "a 2nd length of wrinkle image" is amended to "said wrinkle image of a 2nd length";
- "which indicates image of wrinkle shorter" is amended to "which is shorter";
- "said 1st length of wrinkle image" is amended to "said 1st length";
- "a 2nd amount of wrinkle image is" is amended to "a 2nd amount of said one or more of arm joint wrinkles are";
- "said 2nd amount of wrinkle image" is amended to "said 2nd amount";
- "said 2nd value is value higher than" is amended to "said 2nd value is larger than";
- "said 2nd amount of wrinkle image" is amended to "said 2nd amount";
- "smaller compared to" is amended to "smaller than"; and
- "said 1st amount of wrinkle image" is amended to "said 1st amount".

### **Claim 30**

The Examiner states in the O.A. that claim 30 is directed to non-statutory matter on the ground that claim 30 is "determined to be an arm joint wrinkle displaying method which displays (an) object with arm joint wrinkle on display, consisting

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solely of mathematical operations, converting one set of numbers into another set of numbers, whereby the method does not manipulate appropriate subject matter".

Applicant believes that claim 30 does not convert one set of numbers (e.g., the 1st and 2nd values) into another set of numbers (e.g., the 1st and 2nd amounts) -- the "integral number" described in claim 30 merely meant to be the number with no decimal fractions, i.e., the whole number (e.g., "1", "2", "3" are whole numbers, but "1.2", "2.1", "3.4" are not -- they include decimal fractions). In order to avoid misleading the reader of this application, "integral number" is amended to "whole number".

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### Conclusion

For all of the above reasons, applicant submits that the claims all define patentably over the prior art. Therefore, applicant submits that this application is now in condition for allowance, which action applicant respectfully solicits.

### Conditional Request Constructive Assistance

Applicant has amended the claims so that they are proper, definite, and define novel structure which is also unobvious. If, for any reason this application is not believed to be in full condition for allowance, applicant respectfully requests the constructive assistance and suggestions of the Examiner pursuant to M.P.E.P. §

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2173.02 and § 707.07(j) in order that applicant can place this application in allowable condition as soon as possible and without the need for further proceedings.

Applicant has no intent to limit the scope of each claim presented in this amendment by the previous amendment(s) submitted by applicant.

Applicant has no intent, by submitting this amendment, (1) to narrow the scope of any claim nor (2) to surrender any equivalent of any element included in the claims. No new matter is added by this amendment.

### Misc.

Applicant has no intent to limit the scope of the claims presented in this amendment by the previous amendment(s) (if any) submitted by applicant.

Applicant has no intent to surrender any equivalent of any element included in the claims by any amendment, whether previously or subsequently submitted, of the claims unless expressly and unambiguously stated otherwise in the amendment.

Applicant has no intent to limit the scope or deny the patentability of this application by other applications filed by applicant.

Applicant has no intent to limit the scope or deny the patentability of other applications filed by applicant by this application.

No new matter is added by this amendment.

## Electronic Acknowledgement Receipt

<b>EFS ID:</b>	1336396
<b>Application Number:</b>	10065923
<b>International Application Number:</b>	
<b>Confirmation Number:</b>	5324
<b>Title of Invention:</b>	Simulation software
<b>First Named Inventor/Applicant Name:</b>	Iwao Fujisaki
<b>Customer Number:</b>	33661
<b>Filer:</b>	Iwao Fujisaki
<b>Filer Authorized By:</b>	
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<b>Receipt Date:</b>	28-NOV-2006
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<b>Application Type:</b>	Utility

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### File Listing:

Document Number	Document Description	File Name	File Size(Bytes)	Multi Part /.zip	Pages (if appl.)
1	Miscellaneous Incoming Letter	Draft-ppa007-11AmendD04.pdf	157590	no	39

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